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107

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,832	12/21/2001	Rod Fensom	27581/99215	4938

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MARSHALL, GERSTEIN & BORUN LLP  
6300 SEARS TOWER  
233 S. WACKER DRIVE  
CHICAGO, IL 60606

EXAMINER

GIMIE, MAHMOUD

ART UNIT PAPER NUMBER

3747

DATE MAILED: 01/27/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/036,832

Applicant(s)

FENSOM ET AL.

Examiner

Mahmoud Gimie

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-17 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,8,9,13,18 and 19 is/are rejected.
- 7) ☒ Claim(s) 3,5-7 and 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☒ Interview Summary (PTO-413) Paper No(s). 9.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

Overview Of Office Action

1. The finality of the last office action has been drawn in view of the telephone interview on 1/15/04.
2. Claims 1-19 are pending in this application

***Drawings***

3. Figures 4-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art of figures 4-6 in view of Bergstrom et al (5,328,100).  
Figures 4-6 show a high-pressure fuel supply system comprising: a low-pressure fuel suction passage (2) connected with a fuel tank (10); a high-pressure fuel discharge passage (4) connected with a delivery pipe (16) which is in turn connected with a fuel

injection valve[s] (17); a [high pressure] fuel pump arranged between said low-pressure fuel suction passage and said high-pressure fuel discharge passage and being operable, during reciprocation of a piston in a sleeve, to open a suction valve to suck fuel from said low-pressure fuel suction passage (2) into a fuel pressurization chamber on a suction stroke and to open a discharge valve to discharge the fuel in said fuel pressurization chamber to said high-pressure fuel discharge passage (4) on a discharge stroke; a relief passage (6) connecting between said fuel pump and said low-pressure fuel suction passage; and an electromagnetic valve (7) arranged on said relief passage and adapted to be opened to control an amount of fuel discharged from said fuel pump on a discharge stroke; said electromagnetic valve comprising: a plunger (40); a valve seat (42) with which said plunger is caused to move into and out of contact so that said valve seat is placed into fluid communication with said fuel pressurization chamber when said plunger is moved apart from said valve seat; a stopper (43) for limiting the distance of separation of said plunger from said valve seat; an armature (45) made of a magnetic material and fixedly secured to said plunger; a core (46) arranged in an opposed relation with said armature; a solenoid [coil] (47) wound around said core (46) for attracting said armature (45) toward said core through an electromagnetic force when energized; and a spring (48) for urging said plunger (40) in a direction toward or away from said valve seat (42).

Figures 4-6 do not show a groove formed in the vicinity of opposed surfaces of said armature (45) and said core (46) for magnetically saturating a portion of a magnetic circuit generated by energizing said solenoid.

Art Unit: 3747

Bergstrom (5,328,100) shows a groove (30) formed in the vicinity of opposed surfaces of an armature (20) and a core (14) for magnetically saturating a portion of a magnetic circuit generated by energizing said solenoid.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the admitted prior art by using a groove in the vicinity of opposed surfaces of the armature and the core. The motivation to do so would have been for reducing certain audible operating noise from the solenoid valve, see column 1, ll. 10-11.

With regard to claim 3, said groove (30) is formed in said armature (20).

With regard to claim 4, said groove (20) is formed apart 2-4 mm from an attraction surface of at least one of said core and said armature.

**6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (APA) of figures 4-6 in view of Bergstrom (5,207,387).**

The APA shows all the limitations as applied to claims as applied to claims 1, 3 and 4 above, except for the groove being formed in the core.

Bergstrom (5,207,387) discloses a groove (30) formed in the core (14).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the APA by forming a groove in the core as disclosed by Bergstrom. The motivation to do so would have been for reducing certain audible operating noise from the solenoid valve, see column 1, ll. 9-11.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show solenoid valves.


8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 703-305-1037. The examiner can normally be reached on 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

M Gimie



MAHMOUD GIMIE  
PRIMARY PATENT EXAMINER  
ART UNIT 3747